

# Delta Monitoring Programs & Directory

Thomas Jabusch  
Aquatic Science Center



# What we said>>>>



- o Build on existing efforts
- o Identify efficiencies
- o Data gaps?

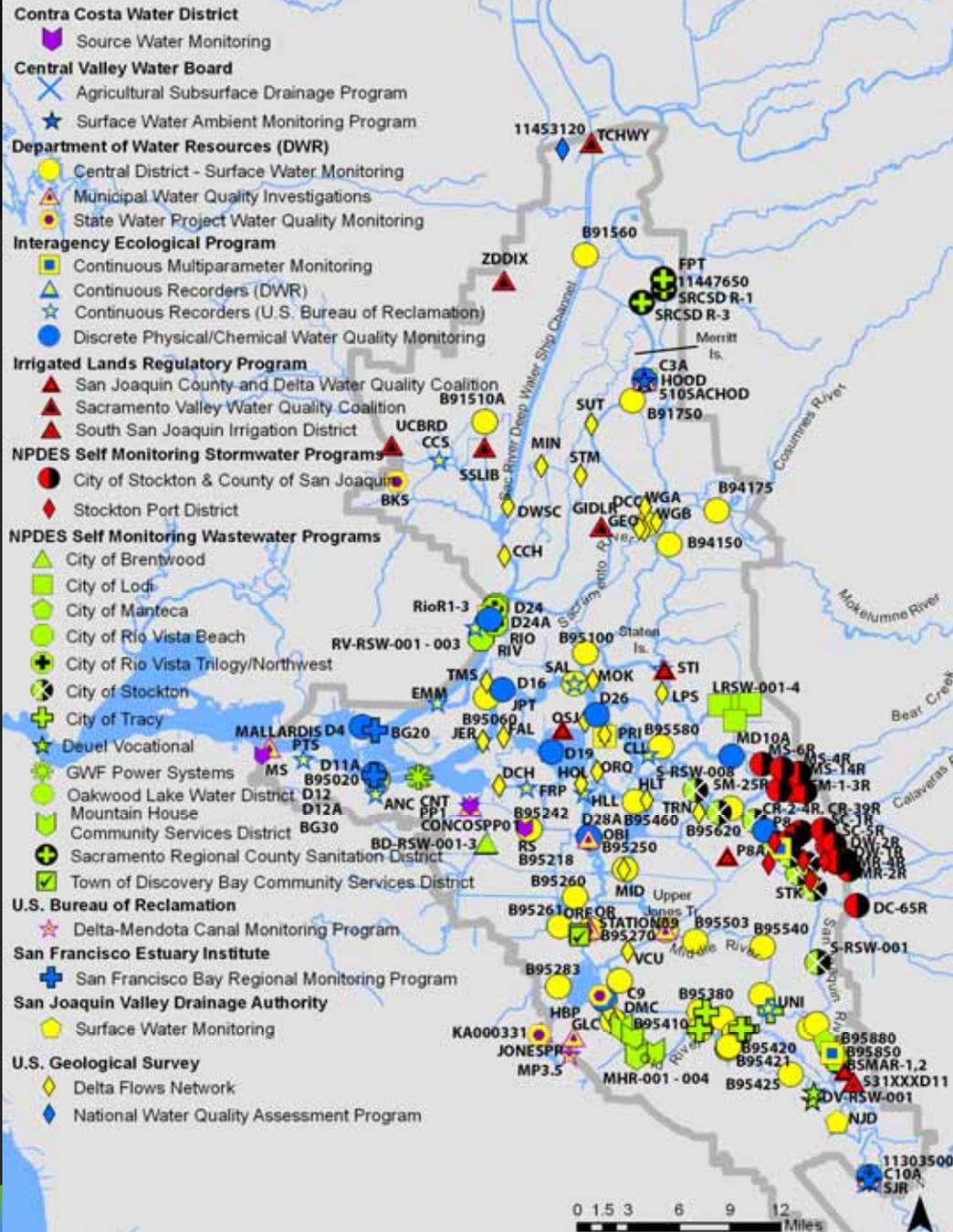
# Products



[www.centralvalleymonitoring.org](http://www.centralvalleymonitoring.org)

# Water Quality Monitoring in the Delta

## Overview of Delta Monitoring Sites by Program





Continuous

Receiving Water

Water Supply

Regional/Watershed

# "Box" 1: continuous

## Continuous Multiparameter

 IEP EMP

## Continuous Recorders

 DWR

 Reclamation

## Delta Flows Network

 USGS

## Delta-Mendota Canal

 Reclamation

## MWQI

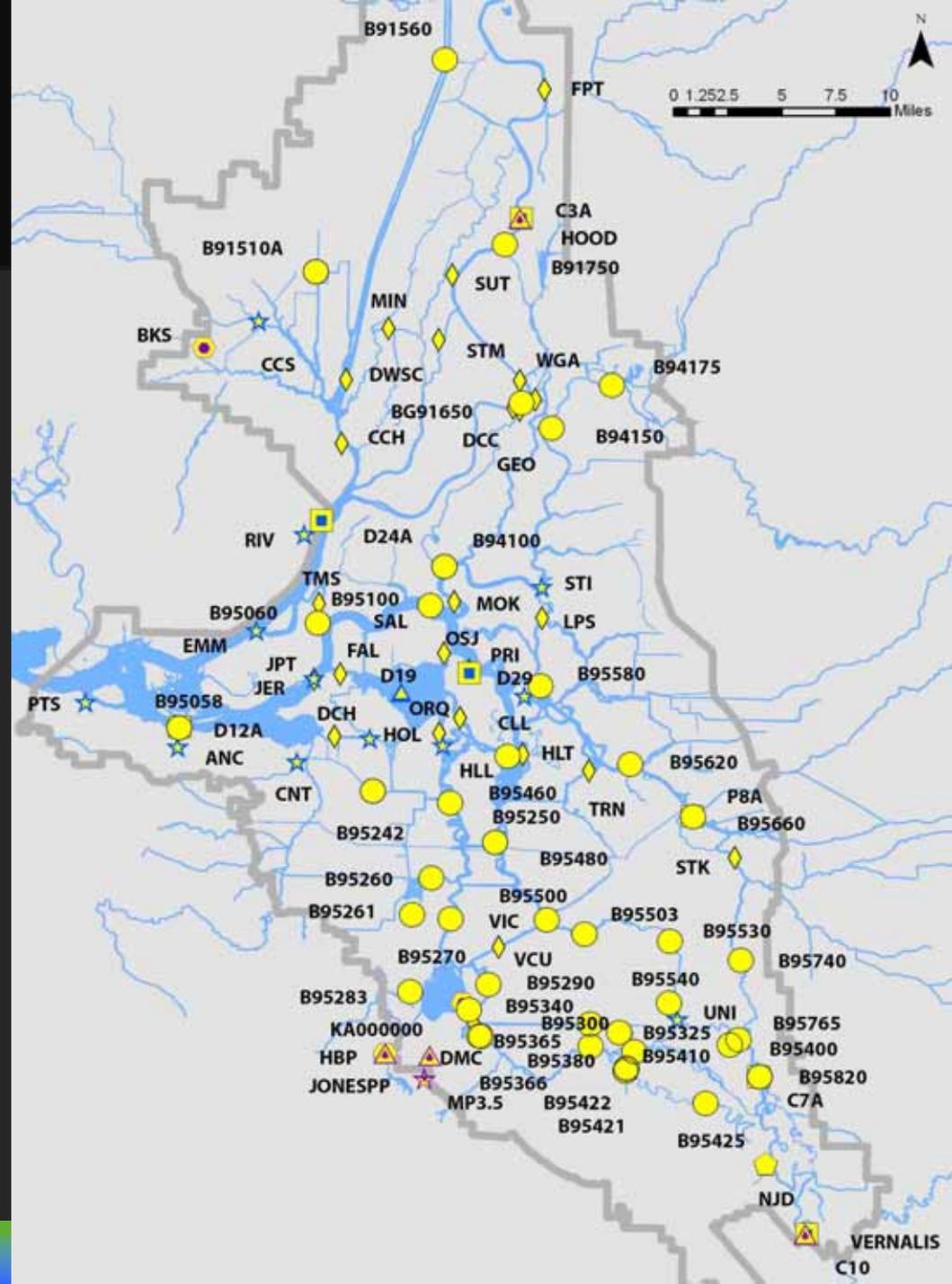
 DWR

## State Water Project

 DWR

## Surface Water Monitoring

 DWR Central District  
DWR/SJVDA



# "Box" 2: receiving water

Irrigated Lands

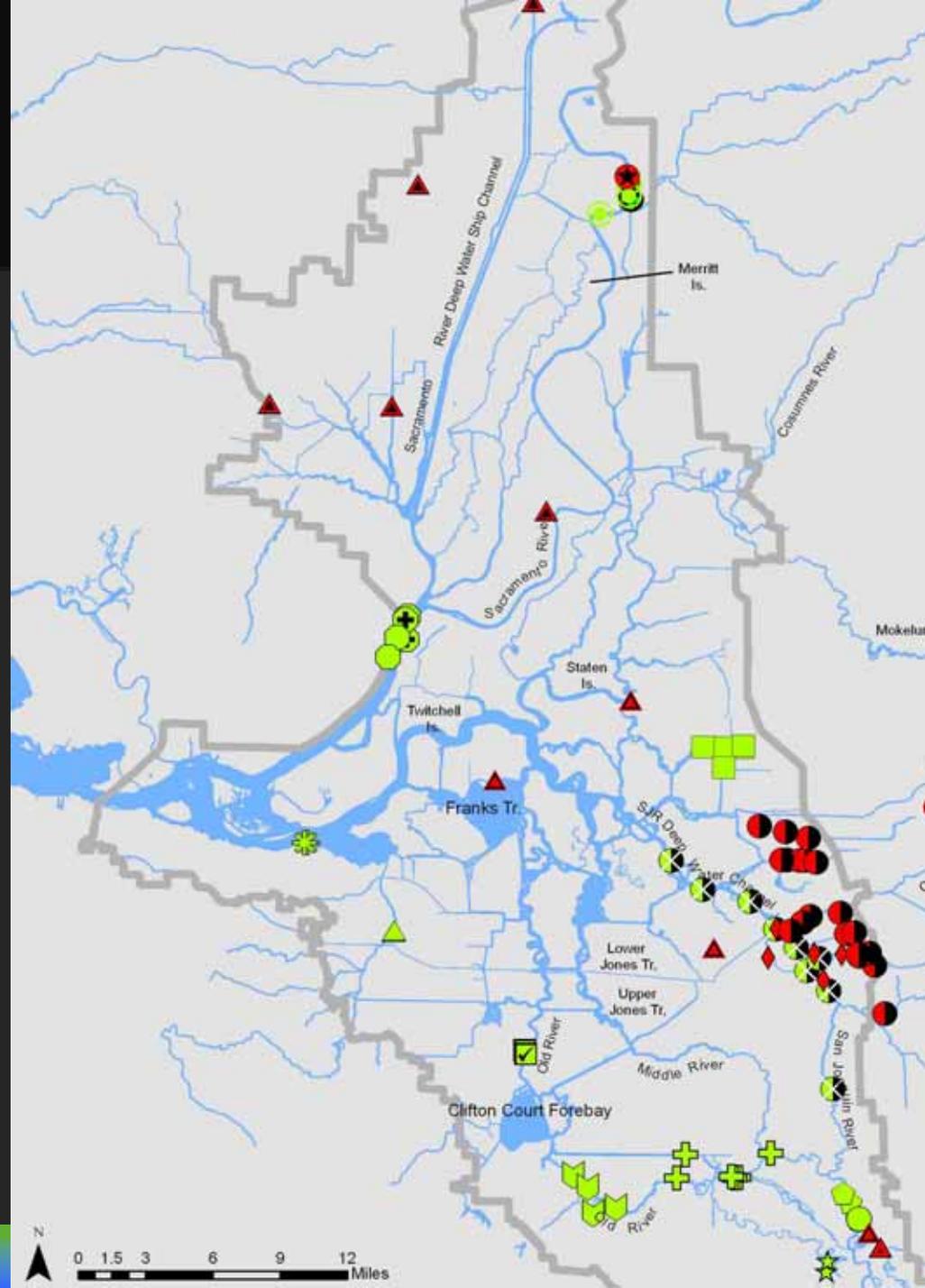


NPDES Stormwater



NPDES Wastewater

green



# "Box" 3: water supply

## Delta-Mendota Canal

 Reclamation

## State Water Project

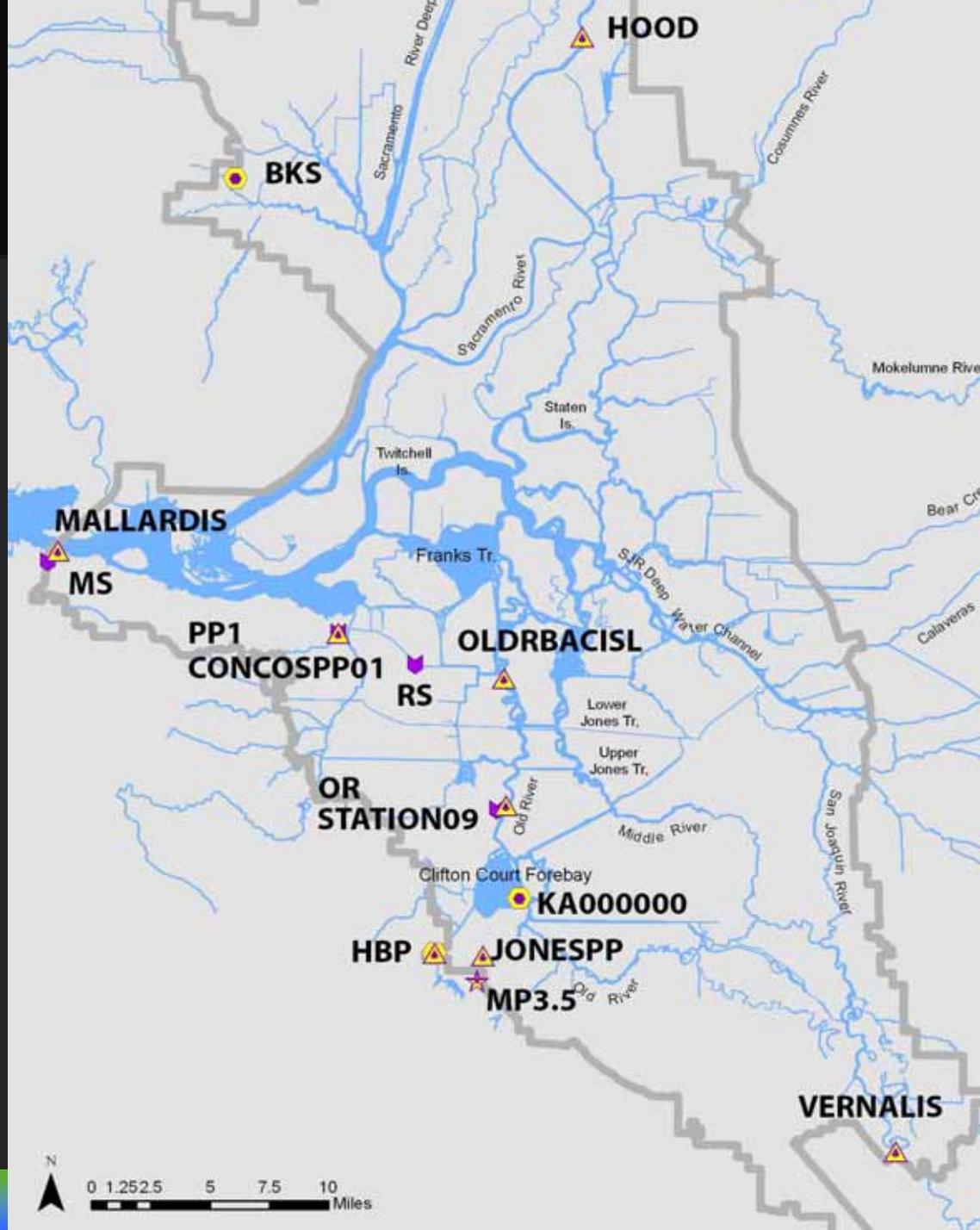
 DWR

## MWQI

 DWR

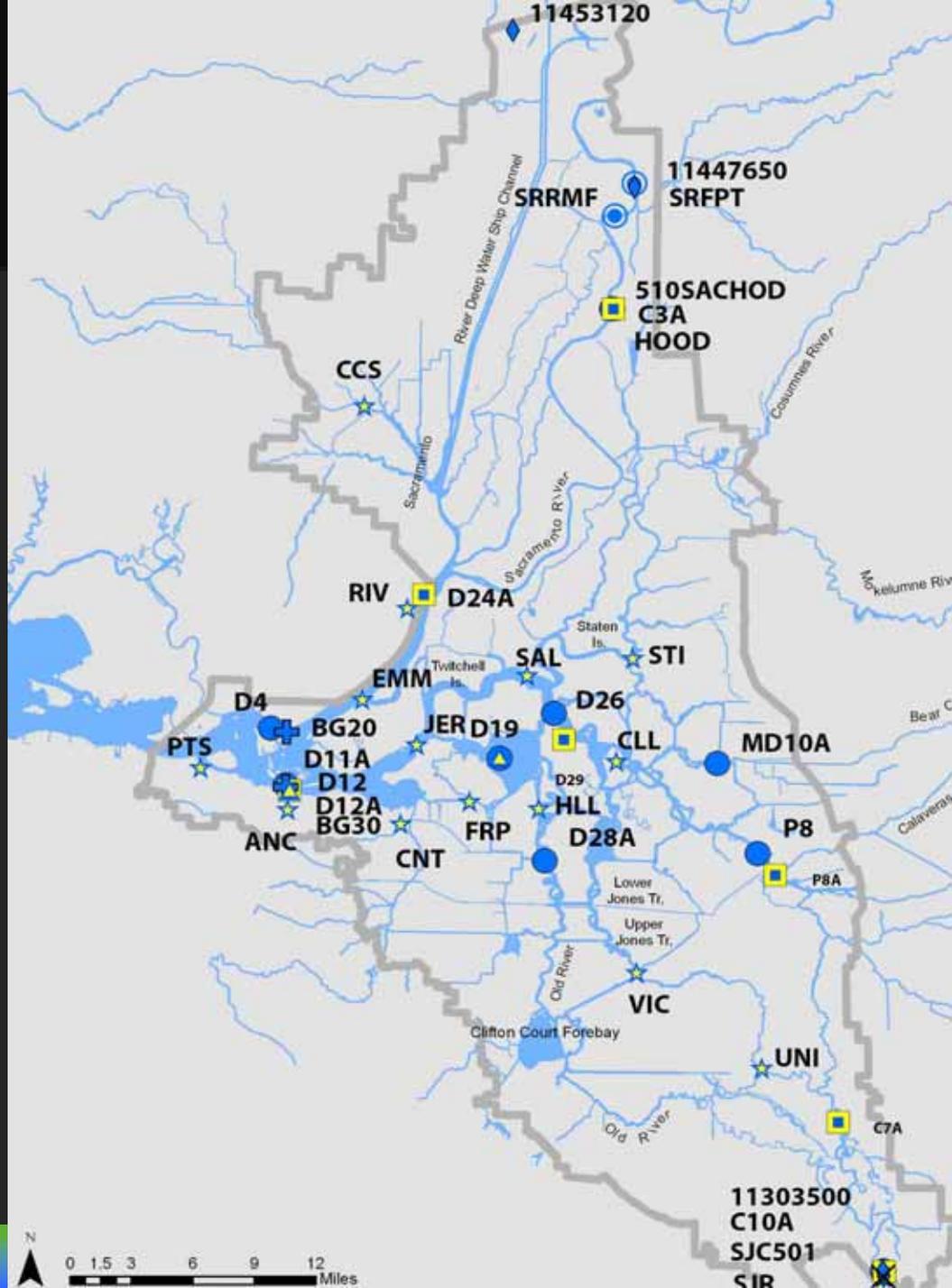
## Source Water Monitoring

 CCWD



# "Box" 4: regional/ watershed

-  SWAMP
-  Continuous Multiparameter (IEP EMP)
-  Continuous Recorders (DWR)
-  Continuous Recorders (Reclamation)
-  Discrete Physical/Chemical (IEP EMP)
-  San Francisco Bay RMP
-  Sacramento CMP
-  National Water Quality Assessment Pr.



# San Francisco Bay Regional Monitoring Program

<http://www.sfei.org/rmp/index.html>



## Agency/Organization

San Francisco Estuary Institute

## Project Contact

Meg Sedlak  
(510) 746-7345  
[meg@sfei.org](mailto:meg@sfei.org)

## Start Date

1993

## End Date

ongoing

## Monitoring Objectives

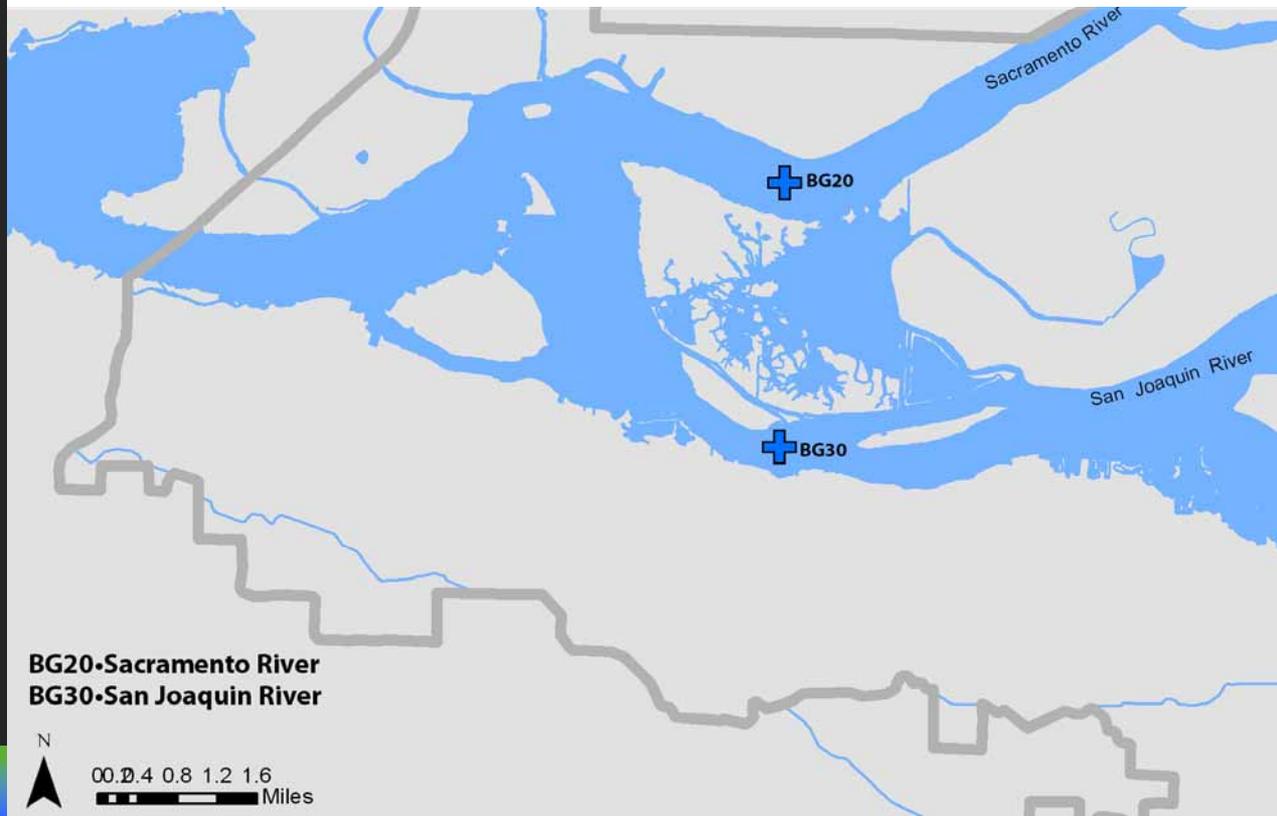
Collect data and communicate information about water quality in the San Francisco Estuary to support management decisions.

## Annual Budget

\$3M(entire program)

## Sampling Locations

Number of active sites (Delta only): 2



## San Francisco Bay Regional Monitoring Program



| Parameters  | Sample Type   |
|---|---|
| <b>Bioassessment:</b> Chlorophyll a, Phaeophytin a  | Community   |
| <b>General Sediment Quality:</b> Particle Size  | Sediment Quality  |
| <b>General Water Quality:</b> DO, EC, pH, Temperature, TSS  | Water Quality   |
| <b>Hydrology:</b> Depth   | Water Quality   |
| <b>Major Ions and Minerals:</b> Hardness, Silica  | Water Quality   |
| <b>Trace Elements &amp; Metals:</b> Arsenic (Dissolved), Cadmium (Dissolved), Copper (Dissolved), Iron (Dissolved), Lead (Dissolved), Manganese (Dissolved), Cobalt (Dissolved), Nickel (Dissolved), Selenium (Dissolved), Silver (Dissolved), Zinc (Dissolved) | Water Quality   |
| <b>Mercury:</b> Mercury (dissolved), Methylmercury (dissolved)  | Water Quality   |
| <b>Pesticides:</b> Herbicides, Organochlorine Pesticides, Organophosphates  | Water Quality   |
| <b>Sediment Chemistry:</b> Aluminum (Total), Ammonium as N, DOC, Mercury (dissolved), Methylmercury (dissolved), Nitrate as N, Nitrite as N, PAHs, PBDEs, PCBs, TOC, Phosphate as P, Total Nitrogen,  | Sediment Quality  |
| <b>Tissue Chemistry:</b> Aluminum (Total), Mercury (dissolved), Methylmercury (dissolved)   | Bioaccumulation   |
| <b>Sediment Toxicity:</b> (Amphipod) % Survival; (Bivalve) % Normal Development   | Toxicity  |
| <b>Water Toxicity:</b> (Amphipod) % Survival; (Bivalve) % Normal Alive  | Toxicity  |
| <b>Data Availability</b>  | <b>URL</b>  |
| Annual Report   | <a href="http://www.sfei.org/rmp/rmp_docs.html">http://www.sfei.org/rmp/rmp_docs.html</a> |

# Data Availability:



## Programs

## Public Databases

## Access Points

IEP EMP

Continuous Recorders

ILRP, SWAMP,  
SF Bay RMP

DWR: MWQI

DWR: State Water Project,  
Surface Water  
Delta Flows Network

BDAT

SWAMP databases/  
CEDEN

DWR Water Data Library

CDEC

NWIS

<http://bdat.ca.gov/>

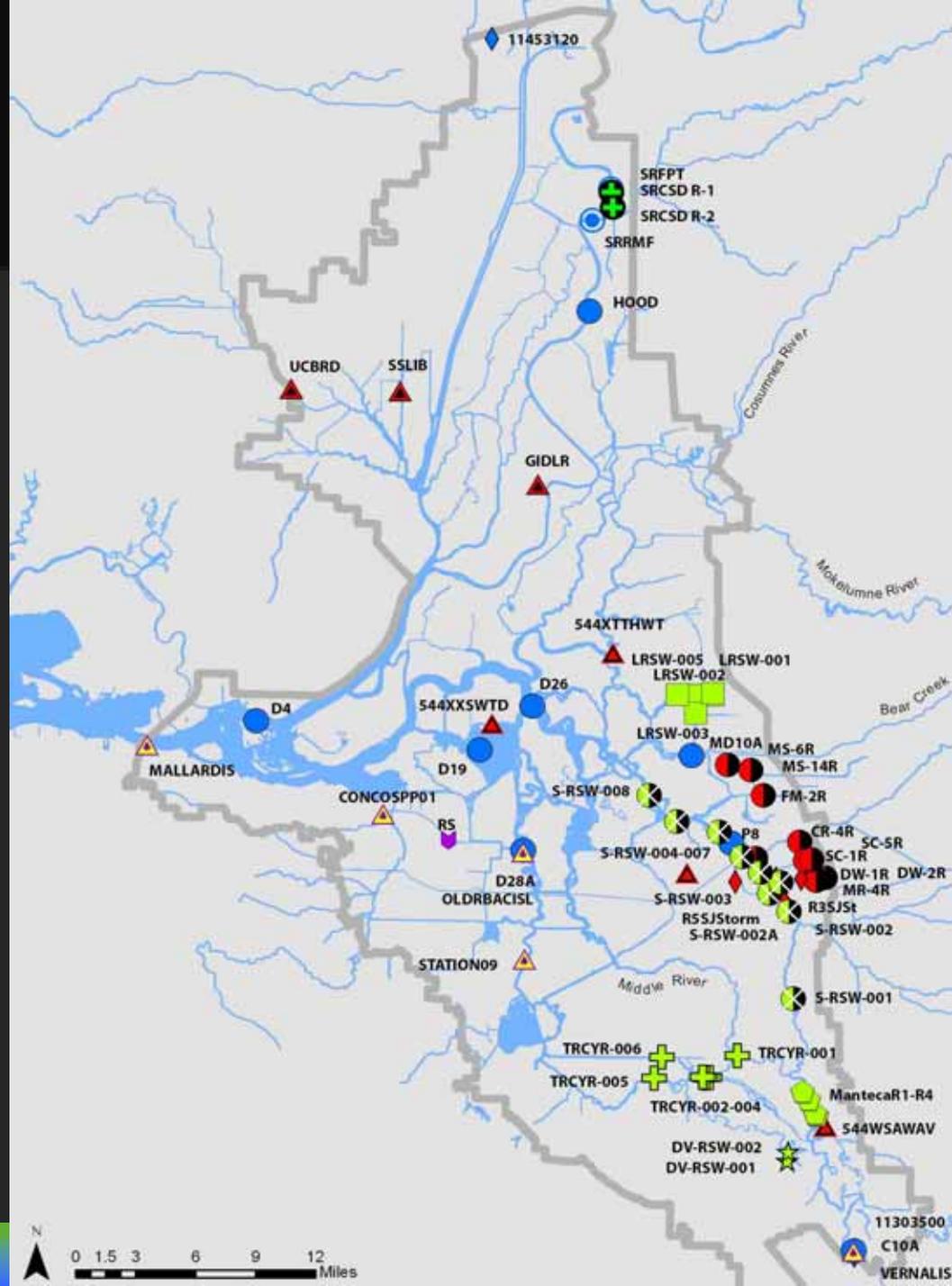
MLML, SFEI, Regional Water Board websites

<http://wdl.water.ca.gov>

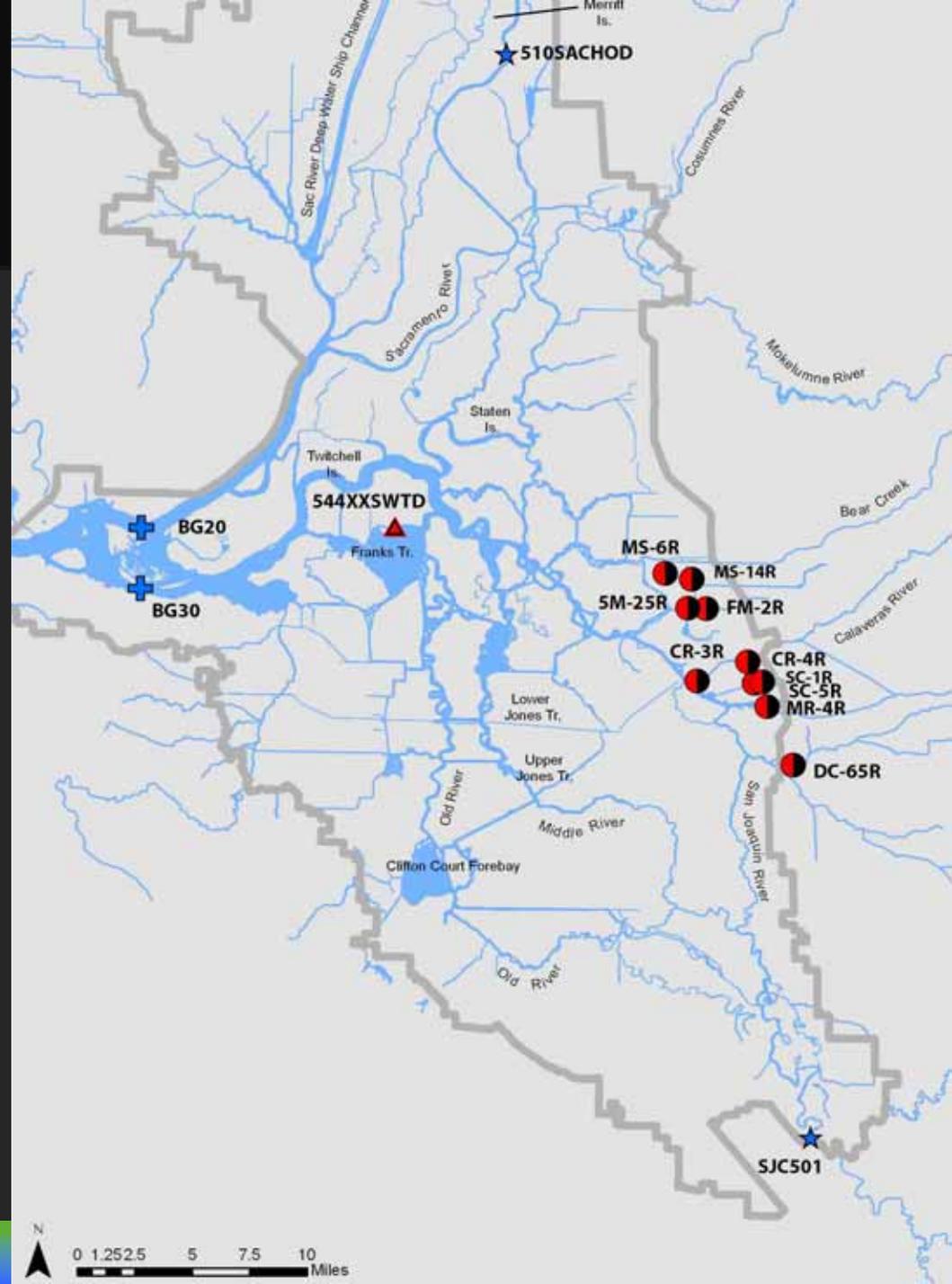
<http://cdec.water.ca.gov>

<http://waterdata.usgs.gov>

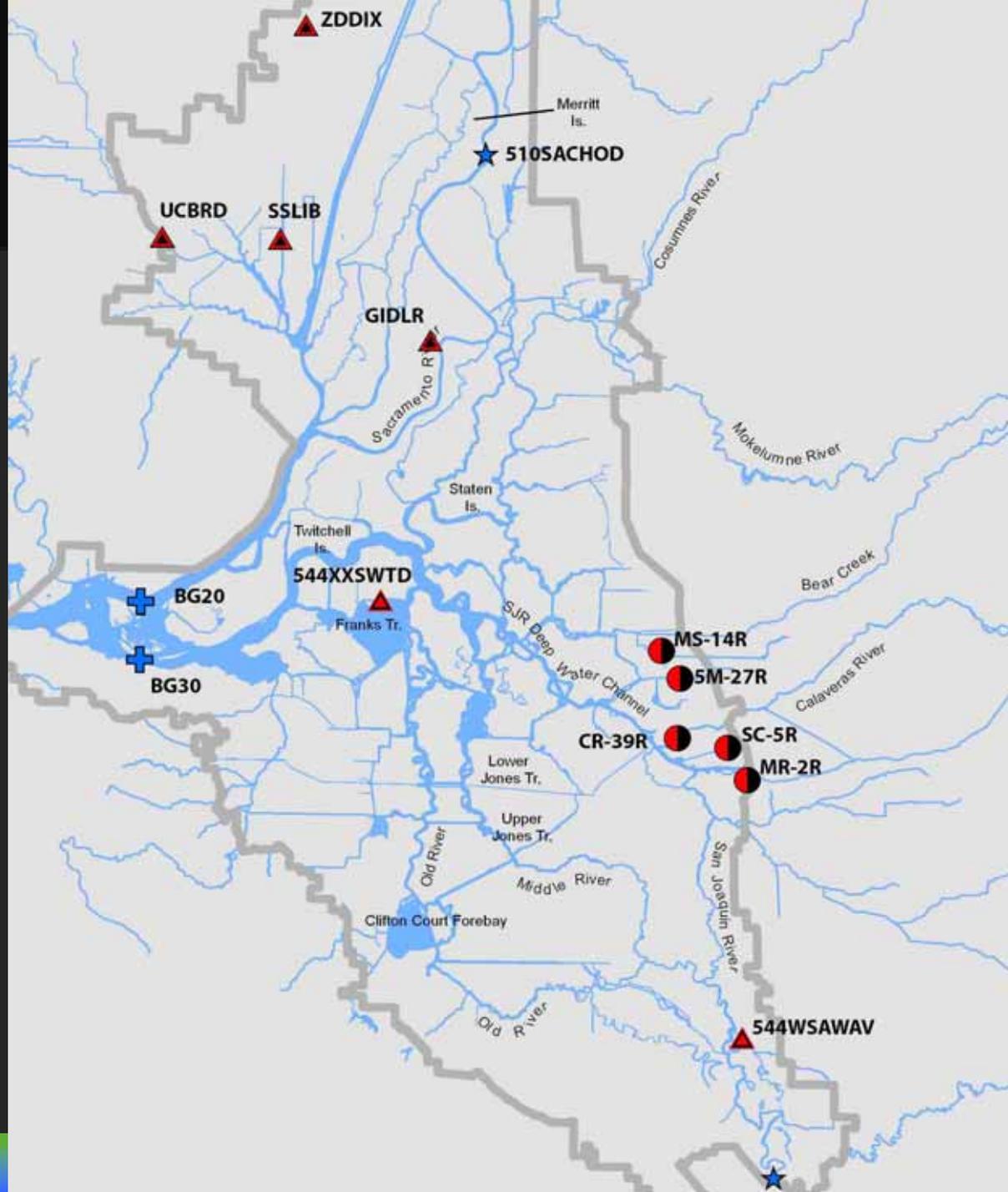
# Ammonia



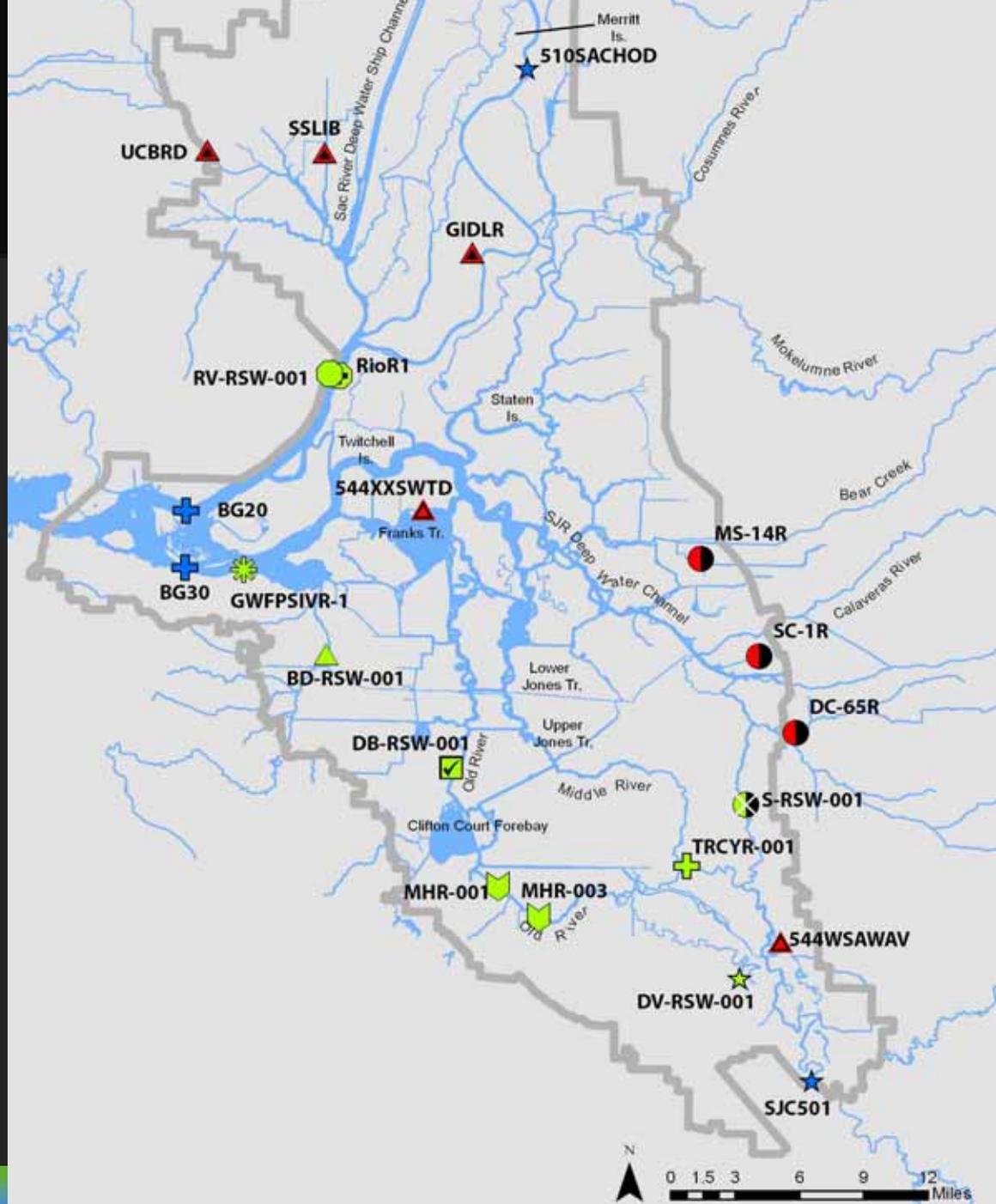
# Sediment Contaminants



# Sediment Toxicity



# Water Toxicity



*If we took the funds currently being spent on monitoring and prioritized information needs on which to spend it, would monitoring **look the same** as it does today?*

# Shared monitoring/assessment objectives or topics



= > Patterns?

- potential redundancies
- gaps
- opportunities for coordination

= > exchange of requirements for participation?

- reduce frequency, parameters, or stations?
- periodic shifts?

# Speaking Points – On-line Directory

- What it is and how it could help
- How it works
- Status as of today
- Where to take it from here

# Purpose of the online-directory:

- **Basic Information Needed to Improve Coordination**
  - Who else is sampling what when where?
  - Where's the data/information available?
- **Report goes out of -date**
- **Directory virtual monitoring “yellow pages”; can be updated and maintained**

# Directory “Tour”:

- Directory itself (“yellow pages”)
- Populating - updating

Beta Version  
**Central Valley Watershed**  
**MONITORING DIRECTORY**

DISCLAIMER: THE SITE IS UNDER DEVELOPMENT AND THE MONITORING LISTED IS STILL BEING VALIDATED.

[HOME](#)

[DIRECTORY](#)

[CONTACT](#)

[TUTORIAL](#)

[LOGIN](#)

The Central Valley Monitoring Directory provides access to program and metadata information of current water quality monitoring efforts in the Central Valley watershed. The directory has been developed as a tool to help improve the coordination and integration of existing monitoring efforts. A database access tool allows searches of monitoring information with a modular search form and an interactive map viewer. Links to actual water quality data have been provided when available.

Features include:

- ▶ Monitoring program information (objectives, duration, funding) and metadata (sampling sites, frequency, parameters, data availability)
- ▶ A search form for customized searches
- ▶ An interactive map for GIS based searching and viewing of monitoring locations and program information



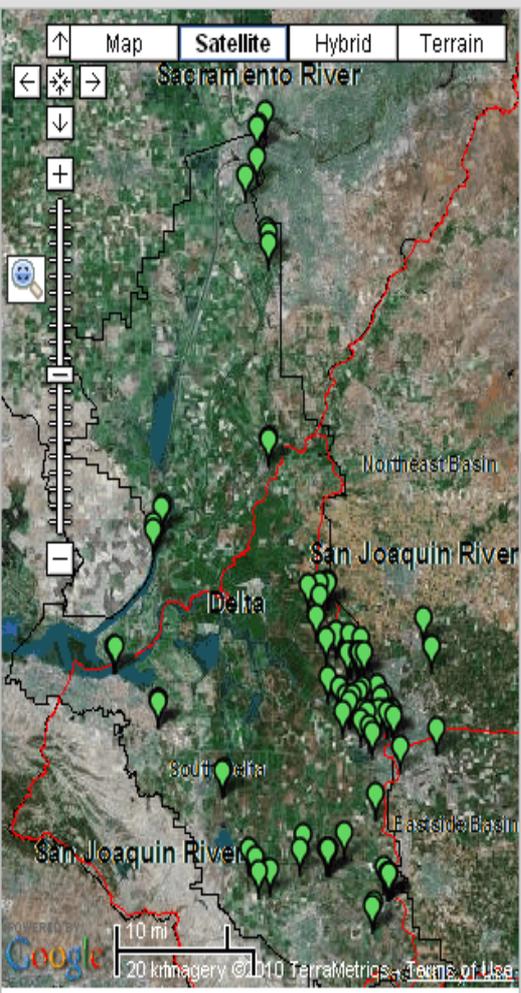
The CENTRAL VALLEY MONITORING DIRECTORY is maintained and was developed by the San Francisco Estuary Institute (SFEI), with funding and participation from the Central Valley Regional Water Quality Control Board, the Water Ambient Monitoring Program (SWAMP) and the Environmental Protection Agency (USEPA).



Central Valley Watershed Monitoring Directory

## Main Directory

Basins  All  Delta  Sacramento River  San Joaquin River  Tulare Lake



[Programs](#) [Agencies](#) [Parameters](#) [Sites](#) [Help](#) [Debug](#)

| Program   | Lead Organization    | No of sites (map all) | Basin | Bioassessment | Bulk Organics | Disinfection Byproducts | General Sediment Quality | General Water Quality | Hydrology | Major Ions & Minerals | Mercury  | Metals & Trace Elements |
|---|----------------------|-----------------------|-------|---------------|---------------|-------------------------|--------------------------|-----------------------|-----------|-----------------------|----------|-------------------------|
| <a href="#">NPDES Self Monitoring Program</a>   | CVRWQC Show Partners | 79 (unmap)            | Delta | 11 sites      | 11 sites      | 28 sites                | 11 sites                 | 72 sites              | 29 sites  | 31 sites              | 29 sites | 34 sites                |
| <a href="#">IEP Environmental Monitoring Program: Discrete Water Quality Sampling</a> | IEP                  | 9 (map)               | Delta |               |               |                         |                          | 9 sites               | 9 sites   | 7 sites               |          |                         |
| <a href="#">DWR Operations &amp; Maintenance - State Water Project Water</a>          | DWR                  | 4 (map)               | Delta |               |               |                         |                          | 4 sites               |           | 4 sites               | 4 sites  | 4 sites                 |



[Download Excel](#) [Scroll to top](#)

map  
Central Valley Watershed Monitoring Directory

main Directory

Basins  All  Delta  Sacramento River  San Joaquin River  Tulare Lake



Programs Agencies Parameters Sites Help Debug

|                     |                                    |                                      |    |
|---------------------|------------------------------------|--------------------------------------|----|
| Priority Pollutants | Priority Pollutants                | 28 sites<br>( <a href="#">map</a> )  | De |
| Sediment Chemistry  | Pyrethroids                        | 8 sites<br>( <a href="#">unmap</a> ) | De |
|                     | Biochemical Oxygen Demand (BOD5)** | 8 sites<br>( <a href="#">map</a> )   | De |
|                     | Chemical Oxygen Demand (COD)**     | 8 sites<br>( <a href="#">map</a> )   | De |
|                     | Sediment Chemistry - other         | 7 sites<br>( <a href="#">map</a> )   | De |
|                     | Total Organic Carbon (TOC)         | 9 sites<br>( <a href="#">map</a> )   | De |
|                     | Organochlorine Pesticides          | 3 sites<br>( <a href="#">map</a> )   | De |
|                     | Organophosphates                   | 1 sites<br>( <a href="#">map</a> )   | De |

[Download Excel](#) [Scroll to top](#)

Central Valley Watershed Monitoring Directory

Monitoring Directory

Basins  All  Delta  Sacramento River  San Joaquin River  Tulare Lake

Basins  All  Delta  North\_Delta  Northeast\_Basin  South\_Delta

Map Satellite Hybrid Terrain

Site GIS

**Program:** [Surface Water Ambient Monitoring Program \(SWAMP\) - Statewide](#)  
**Monitoring Plan:** [Stream Pollution Trends \(SPoT\)](#)  
**Basin:** Delta  
**Subbasin:** North Delta  
**Watershed:** Sacramento Delta  
**Latitude:** 38.36691  
**Longitude:** -121.52037

**Site Name:** Sacramento River at Hood  
**Site Code:** 510SACHOD  
[Show metadata](#)

San Joaquin River Northeast Basin

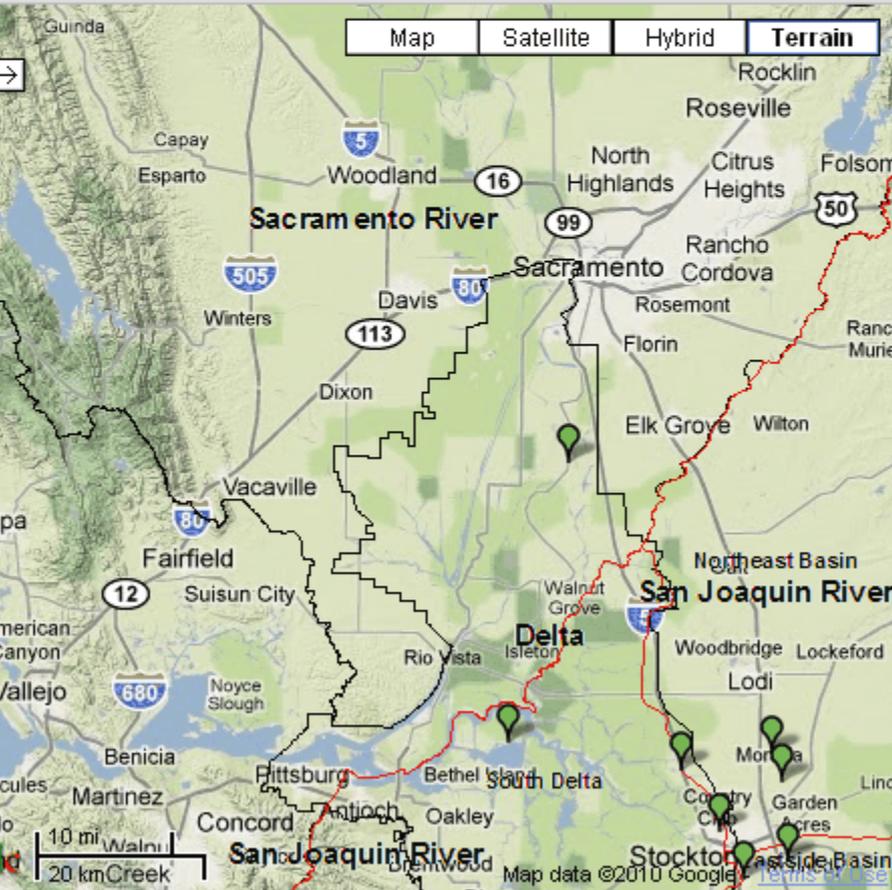
Map data ©2010 Google - [Terms of Use](#)

| Programs            | Agencies                           | Parameters                 | Sites                                | Help | Debug |
|---------------------|------------------------------------|----------------------------|--------------------------------------|------|-------|
| Priority Pollutants | Priority Pollutants                |                            | 28 sites<br>( <a href="#">map</a> )  |      |       |
| Sediment Chemistry  | Pyrethroids                        |                            | 8 sites<br>( <a href="#">unmap</a> ) |      |       |
|                     | Biochemical Oxygen Demand (BOD5)** |                            | 8 sites<br>( <a href="#">map</a> )   |      |       |
|                     | Chemical Oxygen Demand (COD)**     |                            | 8 sites<br>( <a href="#">map</a> )   |      |       |
|                     | Sediment Chemistry - other         |                            | 7 sites<br>( <a href="#">map</a> )   |      |       |
|                     |                                    | Total Organic Carbon (TOC) | 9 sites<br>( <a href="#">map</a> )   |      |       |
|                     |                                    | Organochlorine Pesticides  | 3 sites<br>( <a href="#">map</a> )   |      |       |

[Download Excel](#) [Scroll to top](#)

# Monitoring Directory

All  Delta  Sacramento River  San Joaquin River  Tulare Lake



Programs Agencies Parameters Sites Help Debug

Watershed San Joaquin Delta  
Site Name Vernalis Site Code SJR 1290 Latitude 37.6793 Longitude -121.2651

Show monitored parameters

Show on Map View Program View Monitoring Plan

Basin Delta Sub Basin North Delta  
Watershed Sacramento Delta

Site Name Sacramento River Site Code BG20 1299 Latitude 38.059699 Longitude -121.8

Show monitored parameters

Show on Map View Program View Monitoring Plan

Basin Delta Sub Basin South Delta  
Watershed San Joaquin Delta

Site Name San Joaquin River Site Code BG30 1300 Latitude 38.020541 Longitude -121.8

Show monitored parameters

Show on Map View Program View Monitoring Plan

Basin Delta Sub Basin North Delta  
Watershed Sacramento Delta

Show all sites Scroll to top

Central Valley Watershed Monitoring Directory

Main Directory

Basins All Delta Sacramento River San Joaquin River Tulare Lake

Map Satellite Hybrid Terrain

Site GIS

**Program:** [Regional Monitoring Program for Water Quality in the San Francisco Estuary](#)

[Water Quality in the San Francisco Estuary](#)

**Basin:** Delta  
**Subbasin:** North Delta  
**Watershed:** Sacramento Delta  
**Latitude:** 38.059699  
**Longitude:** -121.806267

**Site Name:** Sacramento River  
**Site Code:** BG20  
[Show metadata](#)

Programs Agencies Parameters Sites Help Debug

Site Name Sacramento River Site Code BG20 1299 Latitude 38.059699 Longitude -121.806267

[Hide monitored parameters](#)

**Monitoring Plan:** Regional Monitoring Program for Water Quality in the San Francisco Estuary

**Sample Type:** Community  
**Parameter Group:** Bioassessment  
**Frequency:** Annual  
 Pheophytin a

**Sample Type:** Sediment Quality  
**Parameter Group:** General Sediment Quality  
**Frequency:** Annual  
 General Sediment Quality - other, Particle Size, Solids Fraction

**Parameter Group:** Sediment Chemistry  
**Frequency:** Annual  
 Aluminum, Arsenic, Cadmium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Organochlorine Pesticides, PAHs, PCBs, Sediment Chemistry - other, Sediment Organic Contaminants - other, Sediment Trace Element - other, Selenium, Silver, Total Organic Carbon (TOC), Zinc

**Sample Type:** Toxicity  
**Parameter Group:** Sediment Toxicity  
**Frequency:** Annual

Show all sites Scroll to top

Central Valley Watershed Monitoring Directory

**Program Info**

**Regional Monitoring Program for Water Quality in the San Francisco Estuary**

Download

**Organization**

San Francisco Estuary Institute

**Contact**

Meg Sedlak  
510-746-7345  
meg@sfei.org

**Start Date** 1993-01-01 00:00:00

**End Date** None

**Objectives** Collect data and communicate information about water quality in the San Francisco Estuary to support management decisions

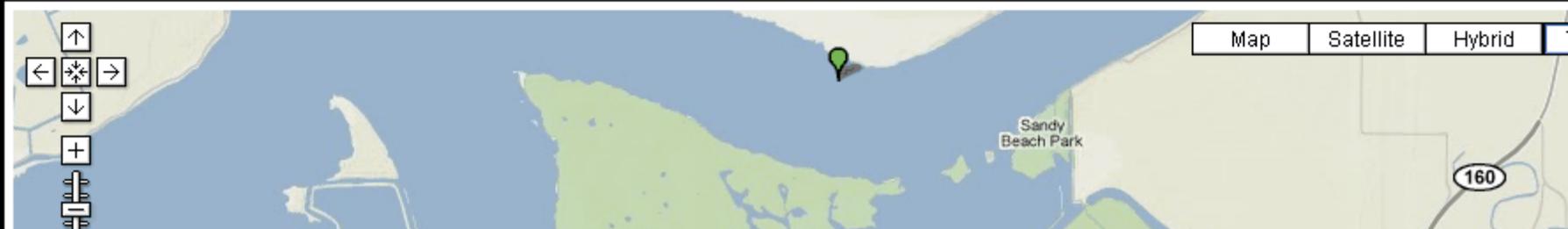
**Annual Budget** \$3M

**Basins & sub-basins monitored**

- Delta (North Delta, South Delta)

**Monitoring Plans**

[Monitoring Plan for Regional Monitoring Program for Water Quality in the San Francisco Estuary](#)



|                      |  |        |
|----------------------|--|--------|
| Contaminants         |  |        |
| Nutrients            | Chlorophyll a , Phosphate as P PO4-P, Total Ammonia as Nitrogen NH3-N  | Annual |
| Organic Carbon (OC)  | Dissolved Organic Carbon (DOC)   | Annual |
| Organic Contaminants | PAHs, PCBs   | Annual |
| Pesticides           | Organochlorine Pesticides, Organophosphates, Pesticides - other  | Annual |
| Sediment Chemistry   | Aluminum, Arsenic, Cadmium, Copper, Iron, Lead, Manganese, Mercury, Nickel, Organochlorine Pesticides, PAHs, PCBs, Sediment Chemistry - other, Sediment Organic Contaminants - other, Sediment Trace Element - other, Selenium, Silver, Total Organic Carbon (TOC), Zinc | Annual |
| Sediment Toxicity    | Bivalve (% normal development)   | Annual |
| Water Toxicity       | Amphipod (% survival)  | Annual |

Showing 1 to 14 of 14 entries Search:

| Data Products     | Available Online | URL   | Available by Request | Comment         |
|-------------------|------------------|---|----------------------|-----------------|
| Annual Report     | Yes              | <a href="http://www.sfei.org/rmp/rmp_docs.html">http://www.sfei.org/rmp/rmp_docs.html</a>               | Yes                  |                 |
| Downloadable data | Yes              | <a href="http://www.sfei.org/rmp/rmp_data_access.html">http://www.sfei.org/rmp/rmp_data_access.html</a> | Yes                  |                 |
| Newsletter        | Yes              | <a href="http://www.sfei.org/rmp/rmp_news.htm">http://www.sfei.org/rmp/rmp_news.htm</a>                 | Yes                  |                 |
| Other             | Yes              | <a href="http://www.sfei.org/sfeireports.htm#RMP">http://www.sfei.org/sfeireports.htm#RMP</a>           | Yes                  | Program reports |
| Synthesis Report  | Yes              | <a href="http://www.sfei.org/sfeireports.htm#RMP">http://www.sfei.org/sfeireports.htm#RMP</a>           | Yes                  |                 |

Showing 1 to 5 of 5 entries Search:

Beta Version  
**Central Valley Watershed**  
**MONITORING DIRECTORY**

DISCLAIMER: THE SITE IS UNDER DEVELOPMENT AND THE MONITORING LISTED IS STILL BEING VALIDATED.

The Central Valley Monitoring Directory provides access to program and metadata information of current water quality monitoring efforts in the Central Valley watershed. The directory has been developed as a tool to help improve the coordination and integration of existing monitoring efforts. A database access tool allows searches of monitoring information with a modular search form and an interactive map viewer. Links to actual water quality data have been provided when available.

Features include:

- ▶ Monitoring program information (objectives, duration, funding) and metadata (sampling sites, frequency, parameters, data availability)
- ▶ A search form for customized searches
- ▶ An interactive map for GIS based searching and viewing of monitoring locations and program information



- HOME
- DIRECTORY
- CONTACT
- TUTORIAL
- LOGIN**

The CENTRAL VALLEY MONITORING DIRECTORY is maintained and was developed by the San Francisco Estuary Institute (SFEI), with funding and participation from the Central Valley Regional Water Quality Control Board, the State Water Ambient Monitoring Program (SWAMP) and the U.S. Environmental Protection Agency (USEPA).



# Beta Version Central Valley Watershed MONITORING DIRECTORY

DISCLAIMER: THE SITE IS UNDER DEVELOPMENT AND THE MONITORING LISTED IS STILL BEING VALIDATED.

HOME

DIRECTORY

The Central Valley...  
to program and n...  
quality monitorin...  
watershed. The...  
help improve the...  
monitoring effor...  
searches of moni...  
form and an inte...  
quality data have been provided when available.

**Authentication Required**

A username and password are being requested by http://dataentry.centralvalleymonitoring.org. The site says: "Restricted Area"

User Name:

Password:

OK Cancel

Features include:

- ▶ Monitoring program information (objectives, duration, funding) and metadata (sampling sites, frequency, parameters, data availability)
- ▶ A search form for customized searches
- ▶ An interactive map for GIS based searching and viewing of monitoring locations and program information
- ▶ Password-protected domains as a convenient tool for



by the San Francisco...  
Institute (SFEI), with...  
and participation fro...  
Central Valley Region...  
Quality Control Board...  
Water Ambient Monit...  
Program (SWAMP) and...  
Environmental Protec...  
Agency (USEPA).



Program: Surface Water Ambient Monitoring Program (SWAMP) - Statewide  
Plan: Stream Pollution Trends (SPoT)

**Monitoring Plan**

Site List

Metadata Information List

Contacts

Permit ID

None

Monitoring Plan Name

Stream Pollution Trends (SPoT)

Mon Plan Status

Active

Monitoring Objectives

The overall goal of this long-term trends component of the SWAMP statewide assessment of California streams is to detect meaningful change in the concentrations of stream-borne contaminants and their effects in large

URL

http://www.waterbo

Start Date

01/01/2009

End Date

Annual Budget

Funding Source

Return to Program

Add Organization

Add Site to Plan

Add Meta Info to Plan

Add Contact

Save Plan

# Next:

- Public release
- Consult with regional monitoring groups
- Feasibility study